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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
An Allocation of Spectrum for the Private Mobile Radio Services	)	**RM-9267**

TO: The Commission

PETITION FOR RULE MAKING
SUBMITTED BY THE
LAND MOBILE COMMUNICATIONS COUNCIL
April 22, 1998

Comments from
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1. The Land Mobile Communications Council (LMCC) has petitioned the Commission for immediate reallocation of Shared Amateur Service Frequency allocations to the Private Mobile Radio Service (PMRS).

2. The proposal cites spectrum needs for future expansion of services for private business use primarily. The needs of the business communication needs have been addressed but what about the needs of the Amateur Radio Operator and the private citizen for their personal communications without respect to pecuniary interests. Amateur Radio is just that, a private radio system for anyone who qualifies without respect to financial or business needs. Amateur radio has a far greater value to the general public as a voluntary non-commercial communication service, particularly with respect to providing emergency communications, the continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art, the encouragement and improvement of the amateur service through rules which provide for advancing skills in both the

communication and technical phases of the art, the expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts, and through the continuation and extension of the amateur's unique ability to enhance international goodwill. Quoting the regulations and purpose. This is a request by a small group of corporate entities to use spectrum that shows to be of no benefit to public as a whole but to industry. There are well over 750,000 amateur licensees, three times the number licensed business groups stated by the LMCC. The spectrum used by these licensees and by the Commercial Radio Service (CMRS) by far exceeds that which amateur operators currently have allocated in the bands from 30 MHZ to 1300 MHZ. Amateur operations on VHF are crammed into 4 MHZ of bandwidth on 140-174 MHz, and on 222-225, 3 MHz. On UHF 20 MHZ of band shared is with at least two other radio services and at that 420-430 is inaccessible in some regions due to Canadian and international treaty restrictions and land mobile radio use in selected cities near the Canadian Border. The 902-928 Amateur band is shared with very low power cordless telephones and radio location services, similar sharing is done on the 23 cm band with government stations.

3. Concerning safety and co-channel uses and interference. On a regular basis, I do use PMRS radio service frequencies, they have their place. Although there is co-channel interference, most of the interference is from those that do not listen before they transmit. Regularly while monitoring a local ambulance business that shares channels with school bus drivers, each of these operators cause significant amounts of interference with each other. Ambulance crews relaying information about medical calls are constantly hampered by school bus drivers who what do know is Johnny is going to school today or not. This interference is due more to ignorance than intentional malicious interference and mainly due to the CTCSS (continuous tone coded squelch system) which can be remedied by just listening for a clear frequency before transmitting if the busy light is on. It is foolish to think that a single user has exclusive rights to an allocation for the entire region it has been licensed. On the safety issue the petitioner cite a case where two workers were kill when an equipment operator "dropped" a freight container on them. Again railroads have remedied this by requiring engine and train crews to ensure that the communication is intended for them by simply using tactical call signs "Catskill Mtn Engine Nr 1 stand fast" or "Conrail Engine 4103 permission to proceed past stop signal at CP 87". By the proper addressing and identification of radio users by

these tactical calls you clearly address only one recipient of a transmission. "Crane 3 drop it". This should alleviate most safety issues dealing with multiple operators on one channel. An operator who just gets a"drop it" without knowing who the communication is intended for is just simply negligent in his or her duties in regard to the safety of the crew the operator is working with. .

4. The company I am employed by has 4 talk around low power channels and two paired channels for data. It also uses a leased trunked system for dispatching drivers out in the field. The data transmission is in real time using a "packet" system allowing multiple users to transfer data immediately when necessaryamd when the channel is clear. Waits are just about negligible. Data speeds are at 9600 baud, the throughput is much less but data streams are compacted with only the necessary data. The system works well and allows many users at one time. The system has over 30 terminals on it and has had very few problems other than those dealing with damaged equipment. Amateur operators have been experimenting with this technology for 15 years now and amateurs are experimenting with high speed spread spectrum data transfer systems. The data is not personal in nature. Data over the air is accessible by anyone having access to a computer and a terminal or modem wireline or fiber optic systems are much more secure and faster. Trunking systems allow many users to have a private system that other co-channel users do not have privilege to monitor through the channel assignment schemes that assign a user an unused frequency. Is full duplex operation really necessary on 70 cm? No. Current full duplex systems at 800-950 MHZ work quite well. Paired channel separation is present there for full duplex operations.

5. Frequency packing from 25 khz channel spacing to 12.5 channel spacing has yield acceptable results from users of F3E emissions at less than 3 khz deviation and at low powers, typically 2 watts. Many users of especially paging circuits over deviate FM signals or push the system to the 5 khz limit producing unacceptably high band width and splash over for adjacent channel use. FRS systems that use lower power limits and narrower bandwidth have proved themselves compatible and reliable over short distances for plant and factory talk around use.. 6.25 khz channel spacing given the current 5 kHz deviation standard would not only add to the adjacent channel interference but could not alleviate congestion since you would still be able to hear these transmissions on adjacent allocations and would increase RF noise floors in receivers to unacceptable limits. 25 kHz

channel separation for assignments (such as those at my employer) in the same plant even have problems of adjacent channel interference supporting the petitioners argument. Radio users should be looking at new technologies with narrower bandwidth and more efficient use of available finite spectrum in the ranges they already have. Spread spectrum technologies have shown good promise for privacy and high data transfer rates and efficient channel utilization in amateur applications. This is being experimented with by The Tucson Amateur Packet Radio Group, TAPR, one of the first to put high speed reliable data over the air. If a channel has a transmission on it for 15 minutes in an hour the other 45 minutes goes unused with silence. This works great in theory. If each user holds the channel for 6 minutes, and calls once per hour, they consume 6/60 = 0.1 Erlangs (1 erlang is 100% utilization) of capacity. Mapping this to data usage is tricky, since data usage statistics don't follow phone usage statistics too well. Factor this with the User's power density. If they only have data to send 10% of the time, then they use 0.1 * 0.1 = .01 Erlangs. Very few trunks or channels handle a lot of users...most of the time.

6. Spectrum warehousing is common place. The American Association of Railroads (AAR), a LMCC member has 5 channels licensed to it in Kingston, Rhinebeck, Poughkeepsie and the rest area. I never hear any railroad activity on those assignments. IBM has similar pairs licensed according the recent data and IBM has been gone from Kingston now almost 5 years. These are just some examples of warehousing or none utilization of available spectrum.

7. Interference from commercial and private radio service to amateur radio and the public using part 15 devices such as cordless telephones is at an all time high. The model railroad club I belong to has had to place external filtering on it's scanning radio receiver to filter out the interference from paging systems and PMRS private land mobile stations that do not maintain equipment within good engineering practice to eliminate unwanted emmissions. Cases of this interference from poorly filtered high powered transmitter operations and poorly designed Part 15 receiver sets let anyone to listen to these transmissions even it not tuned directly to listen to these transmissions, especially those that are specifically prohibited by federal law and those that we have no intention of intercepting such as cellular and other protected systems. Paging systems are the most offensive of these communications systems. They appear to have signals that are spurious, with no filtering a

repeater system may have and very high power outputs so users don't complain the the pager did not go off in the steel and aluminum warehouse 50 miles from the transmitter site.. An small expense by these operators to clean their signals up would improve radio communications overall significantly by lowering noise floors and save the public the annoyances that they cause.

8. Competitive bidding has put private radio out of the public's hand and into big business. Amateur radio spectrum space puts radio into the hand of anyone who puts in the effort to learn about radio communications, electronics and radio theory, safety and regulations. Amateur Stations pride themselves in the quality of the signals transmitted with respect to interference to other services. Commercial and private services are quite relaxed about the interference they cause to other licenced ad non-licenced services. These amateur operators have an edge on the general populations in that they understand the principles of radio and can effectively deal with the technology and reduce interference to other radio services and have provided the necessary technical know how to solve communications and logistics problems especially in regard to emergency communications.

9. The petition does not offer any proposal to coordinate frequency use in a popular amateur communications band in which the petitioner wants to take over and allow amateur operations on a secondary basis. Although there seem to be many unused open frequencies in the 70cm Amateur band that are not being used by repeater clubs and organizations for amateur television, repeater operation, high speed data backbones, remote linking many individual hams utilize these frequencies for remote and auxillary control. Remote control of stations is popular on this band. Regulations make this band prime for this. Amateur operations that are currently occupying the band and should be allowed to remain and future allocation requests should go thru the coordination process that amateurs have been using for years. Any new PMRS stations should be coordinated by the Amateur community since they already know who has what coordinated stations and where they are. PMRS stations should be secondary allocations if anything assigned space available. There can be no guarantee to any PMRS licence holder that the day after they get their system on the air the find a legitimate amateur operator in two way communications and start screaming that this is our PRIVATE channel what are you doing on our private channel. Amateur has as much right

to use any frequency in this portion of the spectrum as any other licensed station not using the airways at the time. Good amateur practice would dictate the amateur moving communications to another frequency but how long would it be before the amateur is moved out completely and amateurs and PMRS users start fighting about interference to each other when another PMRS system locates in the ham bands.

10. PMRS and CMRS stations have been widdling away at amateur spectrum for years and amateurs are starting to get back allocations it lost decades ago that these users are calling "unusable" with "substantial man-made noise interference". As technology changes so does the need for the spectrum. It was unheard of 30 or 40 years ago to use these bands that seem to be so valuable today. What will happen to the frequencies in the 10 GHz band 10 years from now when technology finds these bands useful for the full duplex personal and very high speed digital communications. Will the LMCC look for them also. The 400 MHZ band is potentially dangerous to the unknowing. Dangers from exposure is higher on these frequencies, although, the limited use of mobile and hand held transceivers at very low power poses lessened dangers from radio frequency energy exposure as outlined in the RF exposure tables. Full duplex operations on these band greatly increases transmitter exposure times with transmitting antennas that will be proximal to head and eyes. These radios are transmitting constantly and make extended battery operation from handheld transceivers impractical even at 2 or three watt low power operations. Talk time on a conventional portable cellular telephone rarely exceeds an hour. Full duplex operation for data is a inefficient use of spectrum unless data streams are quite large. It disallows multiple use of the frequencies during idle times. How much data do PMRS users really have, .01 erlangs of data, maybe .1 erlangs.

11. The House of Representatives has introduced legislation as HR 3572.

Amateur Radio Spectrum Protection Act of 1998 - Amends the Communications Act of 1934 to prohibit the Federal Communications Commission (FCC), after July 1, 1998, from making any reallocations of amateur radio service (ARS) frequency bands, diminishing the secondary allocations of such bands to ARS, or making additional allocations within such bands that would substantially

reduce their utility to ARS, unless at the same time the FCC provides equivalent replacement spectrum to ARS.

Although not passed into law and in committee this petition for spectrum is an attempt to beat the deadline in the legislation if it perhaps it gets signed into law, which has a healthy list of cosponsors. We all know there is very little or no equivalent spectrum available. It is the sense of congress that the commission should take into account the valuable contributions made by amateur radio operators when considering actions affecting the Amateur Radio Service. And it (Congress) strongly encourages and supports the Amateur Radio service and its emergency communications efforts. The furtherance of Private or Commercial Radio has never been attempted to protect from reallocation nor has been it resolved by congress to be recognized as a valuable resource to the public good.

12. The answer is not more spectrum for use but a more efficient use of the available spectrum and education of the users of the older systems about effective radiocommunications.

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I am a Licensed Amateur Radio Operator N3EYQ, some of my background although not technical include: member of the Bloomington Fire Department and an Emergency Medical Technician, Director of Kingston Model Railroad Club, Co-Coordinator of the Ulster County Skywarn System, Affiliated Radio Amateur Civil Emergency Service, (RACES) station.
My employment includes Yellow Freight System, Inc, Yard Jockey/Dock worker, Catskill Mtn Railroad Engineer.